

EU-US HPC Summer School Report September 19, 2011



Executive Summary

The second annual EU-US Summer School on HPC Challenges in Computational Sciences was conducted August 7-12, 2011 at Lake Tahoe, California. In attendance were graduate students and postdocs from Europe and the United States, along with instructors and support staff from Europe and the United States. The participants were from 17 different countries and 30% of the participants were women. A total of 60 participants were chosen from among 236 applications, a 25% acceptance rate. There were 26 instructors and support staff from diverse disciplines and backgrounds to provide a broad spectrum of HPC content as well as mentoring for the students.

The goal was to expand the knowledge of the attendees about high performance computing (HPC) and its applications in multiple fields of science and engineering. The goal was also to foster new collegial friendships and partnerships (nationally and internationally) among the presenters and attendees.

Through a survey after the event was completed, over 90% of the attendees, and 100% of the presenters and support staff, indicated that they found the summer school to be excellent or very good. Through the surveys, the respondents provided a number of suggestions for further improving the summer school in future years, along with a very strong vote for continuing to offer similar summer schools in the future.

Goal

Building on the success of the first EU-US Summer School on HPC Challenges in Computational Sciences, TeraGrid/XSEDE and DEISA/PRACE conducted a second Summer School at Lake Tahoe, California on August 7-12, 2011 for graduate students and postdocs. The goal was to expand the knowledge of the attendees about high performance computing (HPC) and its applications in multiple fields of science and engineering. The goal was also to foster new collegial friendships and partnerships (nationally and internationally) among the presenters and attendees.

The major changes from 2010 included the following offerings:

- The addition of hands-on sessions for attendees to learn to use the tools introduced during the summer school,
- Expansion of the breadth of the disciplines covered by the presentations, and
- Addition of topics requested by the 2010 participants

The site was selected to provide a beautiful mountainous setting while addressing some of the concerns from 2010 for being closer to a major airport. The Lake Tahoe location was selected as being the most economical from among more than a dozen facilities in Colorado, Nevada, and the state of Washington.

Funding Support

The NSF Office of Cyberinfrastructure¹ provided funding for travel by US participants, presenters and staff, and housing and meals for all attendees, presenters and staff. The travel for European participants, presenters and staff was funded by PRACE.

Recruitment of Participants

The 2011 summer school targeted graduate students and postdocs from the US and Europe with a pro-active emphasis placed on recruiting under-represented participants, including women and minorities. The 2011 summer school provided a web site with information about the summer school and a registration form at <http://www.ncsa.illinois.edu/Conferences/EUS-summerschool/index.html>. The team developed a summer school flyer and promotional materials. The recruitment process began March 1, 2011 through TeraGrid, DEISA and PRACE web site announcements and press releases.

The DEISA/PRACE and TeraGrid leadership used extensive mailing lists and contacts among other organizations that were instrumental in helping to spread the word to assist with the recruitment of participants. TeraGrid distributed information via the more than 80 Campus Champions in the US, through the Minority Serving Institute Cyberinfrastructure Empowerment Coalition (MSI-CIEC), the Southeastern Universities Research Association (SURA) and the EL Alliance (<http://www.empoweringleadership.org/>). The Summer School was also promoted

¹ NSF Award: "Evaluating and Enhancing the eXtreme Digital (XD) Cyberinfrastructure for Maximum Usability and Science Impact"; Award #0946505; John Towns, NCSA, Principal Investigator.

through various media outlets including International Science Grid This Week (iSGTW), HPCWire, and professional society newsletters.

Selection of Participants

Interested graduate student and postdocs applied via the summer school web site. The applicants were asked to provide the following:

- Abstract of research focus and their research plans
- Experience with computational science and high performance computing including familiarity with MPI, OpenMP, multi-core, GPUs, applications packages, etc.
- Description of why the applicant wants to participate in the summer school, what they expect to learn, how they plan to apply what they learn, and how they will share what they learn with others.

Applications were reviewed by experts in their fields, and the selection criteria included:

- Description of current research project and how it will benefit from the applicant learning about HPC
- Support of their faculty or research advisor to participate
- A basic understanding of computational science and high performance computing and experience with at least one of MPI, OpenMP, multi-core, or GPU programming
- Compelling statement of the applicant's reason for attending the Summer School
- A broad cross-section among the science and engineering communities from among the applicants
- A broad cross-section from institutions across the US and Europe
- Diversity among the participants including women, minorities and people with disabilities

Selected Attendees

Over 236 applications from graduate students and postdocs were submitted from US and European institutions. Of these, 35 US students were accepted and 25 European students were accepted. Of the 60 accepted participants, two had to cancel in the last two weeks – one cancelled because he could not acquire a visa in time (it was finally approved on the final day of the summer school), and the other cancelled due to personal issues. There were participants from 17 countries, and 30% of the attendees were women. Presenters and support staff were invited from Europe (11) and the US (15) to provide presentations, tutorials, mentoring and support for the participants. The list of attendees is included in Appendix B.

Summer School Program

Based on the 2010 Summer School feedback, hands-on sessions were added in the afternoons to allow time for the participants to become familiar with the tools and resources available to enhance their computational science research efforts.

Presenters were selected from the US and Europe to address a broader range of science topics, to cover the hands-on topics, and to engage experts in the field. They were also selected to mentor the attendees during the summer school. Support staff were selected from the US and Europe to provide assistance during the hands-on sessions, to provide mentoring to the attendees, and to coordinate logistics.

The agenda for the 2011 Summer School is included in Appendix A.

Summer School Surveys

In order to assess the value and impact of the summer school and to help plan for future events, a survey of the attendees was conducted at the conclusion of the summer school. A separate survey was conducted with the presenters and support staff to capture their perspectives on the quality of the summer school and how it could be improved in future events. We received survey responses from 52 of 58 (90%) participants, and 18 of 26 (69%) presenters and support staff.

Through the surveys, everyone was asked about their goals for attending and the extent to which the summer school met those goals. Overwhelmingly the responses indicated that the summer school met their goals, and quite a few said the event exceeded their expectations.

When asked for their overall assessment, more than 90% of the participants rated the summer school as excellent or very good. Fully, 100% of the presenters and support staff all rated the summer school as excellent or very good.

A major aspect that the survey respondents found most useful was the ability to interact with other students and experts with broad inter-disciplinary backgrounds and interests. They also repeatedly mentioned the value of being able to interact with colleagues from other countries on both sides of the Atlantic. They found that it was extremely valuable to learn about the challenges and approaches undertaken in a variety of disciplines. Further, while a number of them felt “forced” to mingle, in the end they appreciated that aspect and as a result gained a larger cadre of friendships and perspectives. Overall, they respondents indicated that the informal (almost family-like) atmosphere was critical to the ability to interact and share information and learn that they are now alone in their research endeavors, and that there are others they can interact with and learn from.

The respondents were also very positive about the addition of the hands-on sessions, an addition recommended by the 2010 summer school respondents. The hands-on sessions and added tools topics were very highly ranked sessions. Numerous respondents complimented the presenters repeatedly for their efforts to make these sessions constructive and effective for learning the tools and techniques for enhancing their own research. A few respondents indicated they would prefer to make the hands-on activities homework assignments, but the prevailing response was that the hands-on sessions were valuable, and that there should be more in the future.

The multi-disciplinary nature of the summer school was repeatedly viewed as a major plus to the event. The respondents felt that learning about common challenges and issues across a range of disciplines was very informative, and reflected very similar comments from the 2010 summer school attendees and presenters.

Numerous attendees, and even a number of presenters, said that what they learned during the summer school would directly benefit their own research. A number of people will use the tools and techniques they learned during the summer school, and some will modify their research methods based on what they learned. While most people felt they created new friendships and have a cadre of people they are likely to call upon, there were also a few people (attendees and presenters) who felt that new collaborations were likely to emerge as a result of attending the summer school.

Finally, while there are still a few people who are opposed to using Facebook, most people felt that the use of social networking tools was beneficial, and “won over” a few non-believers in the value of such environments to foster information sharing and community building. The Facebook is still being used by the attendees to pose questions and interact with “new friends and colleagues.”

As with any event, there is always room for improvement, and the survey responses helped to clarify aspects that should be improved for future events. Unlike, the 2010 summer school, some of the 2011 presenters were unable to participate the full week. For future events, all presenters should commit to attend the full week to help mentor the students. Some of the science presentations were considered too specific to the science; it was recommended that all presenters be provided more guidance to focus on practical coding and performance tips and techniques that can broadly benefit the diverse fields of study of the attendees. Also, the presenters should avoid “selling” their organizations and services.

It was recommended that there be parallel sessions to address the mix of introductory and more advanced audiences. By offering these in parallel, the presenters could better address the needs and interests of the participants.

Another prevailing issue raised by everyone was that the schedule should allow everyone time to enjoy the natural beauty of the location. By using evening sessions, the attendees and presenters will be able to use afternoon periods to explore the local attractions and offerings. Further, extra-curricular outings should be scheduled to allow people to enjoy the area as a group to continue to foster community building.

The detailed analyses of the surveys are provided in appendices C (attendees) and D (presenters and support staff).

Attendee Quotes

The following are highlights of the comments from the attendees, which help to capture the value and impact of the summer school on their education, their research, and their personal motivation for using HPC to advance their careers.

“I was able to meet other researchers from different fields and expertise sometimes complementary to mine. I was able to learn about new advances and challenges in the field of HPC and managed to get some really practical readily applicable knowledge from hands on tutorials.”

“Also, talking shop with speakers and fellow students about the unwritten lore in HPC gave me perspectives that will probably save me weeks or months in coding.”

“Not only did I realize that my research has an important implication (more than what I thought originally), I also met faculty working on similar problems and learned about the various aspects of the problem. It was also a great realization that someone else in some other corner of the world uses the same tools and similar ideas of a workflow.”

“I didn’t originally think I would be able to follow the material but it turned out not only to be very well delivered material but also a very broad review of many facets of the HPC problem. I am just brimming with idea for how to improve the modeling I’m doing, and also to broaden the scope of the research I work on to collaborate with new peers I met at the summer school.”

“The hands-on sessions were a standout. It was great to get confidence with new tools, even with relatively simple applications. They greatly increased the probability that I will actually use the tools going forward.”

“I will incorporate the HPC resources I learned about into my research at an earlier stage than I originally planned, and probably have more of an HPC focus in my thesis topic.”

“Without these hands-on sessions, I probably would have had much more difficulty in choosing the right tools.”

“The networking opportunities were great. I quite liked that the presenters/facilitators made as much an effort to mingle and chat with the participants as the participants did with each other. I have definitely made at least one contact who I hope to collaborate with in the future.”

“I hope to collaborate with at least one person who attended the course. I gained a lot of knowledge and got ideas which will shape the future direction of my research. Also, I feel inspired to continue my research with a little extra enthusiasm.”

“Also, I was glad that everyone who attended was both very nice and professional in interactions. With such an interdisciplinary crowd, it was inevitable that there

would be large gaps in knowledge between individuals. It was wonderful that the participants regarded these gaps as chances to explain their research or expand their knowledge, rather than an insurmountable obstacle to communication or a deficiency in another. It was a very friendly and helpful crowd.”

“This is the best summer school I’ve attended so far. It was well organized and the most of the talks are very helpful. I look forward to attending more summer schools like this.”

“The atmosphere was quite inspiring and stimulating. There were so many great ideas being thrown about, tailored, and fostered. It was great to see such enthusiastic people enjoying themselves while discussing and pursuing research ideas.”

“I definitely found the atmosphere inspiring. It is great to meet so many enthusiastic students and see what research is being done around the world. This was a great way to meet people who due to geography, I may not have had the opportunity to meet otherwise.”

Summary

The overwhelming consensus from attendees, presenters and support staff is that while there is room for improvement, the summer school was extremely effective in allowing the attendees and presenters to achieve (or surpass) their reasons for attending, and that they should be continued with minor changes, and continue as an international endeavor.

Appendix A - Summer School Agenda

EU-US HPC Summer School 2011

South Lake Tahoe, Aug 7-12, 2011

Sun Aug 7

18:00 – 20:00 – Welcome Reception

Mon Aug 8

7:30 – 8:30 Full Breakfast and Registration

8:30 – 9:00 - HPC Challenges and Technology

- PRACE Overview Lennart Johnsson, University of Houston
- XSEDE Overview – John Towns, NCSA

9:00 – 10:30 – Introduction of Participants (1 minute per person to say name, institution, field of research, and favorite hobby) – follow order of book

10:30 – Break

11:00 – 12:00 – Exascale Software Project

David Keyes, Columbia University and KAUST

12:00-13:30 – Lunch and Team Building

13:30 – 17:00 Programming

- Overview on Mixed MPI/OpenMP Programming, UPC, CAF, StarSs Model
Alejandro Duran, Polytechnical University of Catalunya, Barcelona
David Henty, EPCC, University of Edinburgh, UK

18:00 – 20:00 – Poster Session and Buffet Dinner

Tue Aug 9

7:30 – 8:30 Full Breakfast

8:30 – 9:30 - Challenges by Scientific Disciplines I

- Parallel track 1: Materials Science
Thomas Schulthess, ETHZ, Zurich, & CSCS, Switzerland
- Parallel track 2: Plasma Physics
Frank Jenko, Max Planck Institute for Plasma Physics, Garching

9:30 – 10:30 - Challenges by Scientific Disciplines II

- Parallel track 1: Life Sciences
Amber: Thomas Cheatham, Univ. Utah, US
- Parallel track 2: CFD / Engineering
Ulrich Rist, University of Stuttgart

10:30 – 11:00 - Break

11:00 – 12:00 – Challenges by Scientific Disciplines II

- Parallel track 1: Cosmology

- *Britton Smith, Michigan State University*
 - Parallel track 2: Metagenomics
Earthmicrobiome Project - *Folker Meyer, University of Chicago*
- 12:00-13:30 – Lunch and Team Building
- 13:30 – 17:00 - Performance Analysis & Profiling (hands-on)
- PAPI, IPM, PerfSuite, TAU
Philip Blood, PSC, Pittsburgh, US
Bernd Mohr, FZJ, Juelich, Germany

17:00 – Dinner on Own

Wed Aug 10

7:30 – 8:30 Full Breakfast

- 8:30 – 9:30 - Challenges by Scientific Disciplines III
- Parallel track 1: Life Sciences
GROMACS – *Erik Lindahl, University of Stockholm*
 - Parallel track 2: Engineering
A Software Environment for Efficient Flow Simulations
Hans-Joachim Bungartz, Technical University of Munich
- 9:30 – 10:30 – Numerical Algorithms & Parallel I/O
- Parallel track 1: Numerical Algorithms
Scalable fast algorithms for Coulomb interactions
Olaf Lenz, University of Stuttgart
 - 2: Parallel I/O
Lonnie Crosby, National Institute of Computational Sciences (NICS)
- 10:30 – 11:00 - Break
- 11:00 – 12:00 – Open Community Building Time
- 12:00-13:30 – Lunch and Team Building
- 13:30 – 17:00 – Parallel Programming (hands-on)
- GPU/CUDA programming
Wen-Mei Hwu, NCSA

17:00 – Dinner on Own

Thu Aug 11

7:30 – 8:30 Full Breakfast

- 8:30 – 9:30 – Challenges by Scientific Disciplines IV
- Parallel track 1: Numerical Libraries
Tony Drummond, LBNL, Berkeley, US
 - Parallel track 2: Workflow Tools
Scott Callaghan, Southern California Earthquake Center, USC
- 9:30 – 12:00 - Data Intensive Computing (hands-on)

John R Johnson, Pacific Northwest Laboratory
12:00-13:30 – Lunch and Team Building
13:30 – 16:30 Scientific Visualization (hands-on)
Amy Szczepański, University of Tennessee/NICS
16:30 – 17:00 Wrap-up Session
17:00 – Dinner on Own

Fri Aug 12

Coordinate rides to airport(s)

Appendix B – Attendees, Presenters, and Support Staff

EU-US HPC Summer School 2011

South Lake Tahoe, Aug 7-12, 2011

Attendees

European

First name	Last name	Institution	Country
Mohamed	Abdel Kader	Cyprus institute	Cyprus
Paulo	Abreu	Institute For Plasmas and Nuclear Fusion	Portugal
Andrea	Beck	University of Stuttgart	Germany
Simon	Benjaminsson	KTH	Sweden
Corentin	Carton de Wiart	Cenaero	Belgium
Fabio	Caruso	Fritz-Haber-Institut der Max-Planck-Gesellschaft	Germany
Theodoros	Christoudias	Cyprus Institute	Cyprus
Nur Aiman	Fadel	Politecnico di Milano	Italy
Matteo	Ferrabone	Universit degli studi di Torino	Italy
Gordon	Fru	University of Magdeburg	Germany
Derk	Groen	University College London	United Kingdom
Samuli	Hakala	Aalto University School of Science	Finland
Daniel	Harlacher	German Research School for Simulation Sciences	Germany
Steffen	Hess	Astronomisches Institut PostdamAddress:An-der-Sternwarte 16City:Potsdam	Germany
Ilja	Honkonen	Finnish Meteorological Institute	Finland
Milos	Ivanovic	University of Kragujevac	Serbia
Fernando	Izquierdo-Carrasco	Heidelberg Institute for Theoretical Studies	Germany
Konstantin	Koschke	Max Planck Institut for Polymer Research	Germany
Sylvain	Laizet	Imperial College London	United Kingdom
Anne	Meade	University of Limerick	Ireland
Adam	Orlowski	Tampere University of Technology	Finland
Nina	Roth	Argelander-Institut fuer Astronomie der Universitaet Bonn	Germany
Jan	Skala	Jan Evangelista Purkinje University	Czech Republic
Michal	Stepniewski	University of Helsinki	Finland
Estela	Suarez	Julich Supercomputing Center	Germany
Kristof	Unterweger	Technische Universitt Mnchen	Germany

United States

First name	Last name	Institution
Peng	Bai	University of Minnesota
Ke-Jung	Chen	University of Minnesota, Twin Cities
Vera	Dadok	University of California, Berkeley
William	East	Princeton University
Mohamed	ElSaadani	University of Louisiana at Lafayette
Moshen	Eshraghi Kakhki	Mississippi State University
Ryan	Field	Columbia University
Theresa	Foster	University of New England
Shuang	Gao	University of Tennessee at Knoxville
Jodi	Hadden	University of Georgia
	Hebbur Venkata	Virginia Polytechnic Institute and State University
Vishwas	Subba Rao	University of Wisconsin -- Madison
Corey	Henderson	The University of Iowa
Mehrdad	Hosnieh Farahani	UCLA
Steven	Jerome	University of Iowa
Anil	Kapahi	University of Michigan
Brendan	Kochunas	University of Pittsburgh
You	Li	Pacific Northwest National Laboratory
Kenneth	Lopata	University of North Carolina, Chapel Hill
Man	Luo	University of California, San Diego
Benjamin	Madej	University of South Carolina
James	Mazucca	University of Minnesota
Charles	McEachern	University of North Carolina
Maria	Minakova	University of Texas at El Paso
Cuauhtemoc	Munoz	UC Santa Barbara
Mohamad	Nasr Azadani	Missouri University of Science and Technology
Benjamin	Payne	Marquette University
Prachi	Pradeep	University of Chicago
Raman	Shah	University of Tennessee
Adam	Sullivan	Harvard University
Anjali	Tripathi	Harvard University
Alexander	Wiltchko	University of Texas at El Paso
Daniel	Yehdego	Columbia University
Xuefei	Yuan	University of California, Los Angeles
Jin	Zhang	

Presenters and Support Staff

European

First name	Last name	Institution
Alejandro	Duran	Polytechnical University of Catalunya, Barcelona
David	Henty	University of Edinburgh, UK
Thomas	Schulthess	ETHZ, Zurich, & CSCS, Switzerland
Frank	Jenko	Max Planck Institute for Plasma Physics, Garching

Ulrich	Rist	University of Stuttgart
Bernd	Mohr	FZJ, Juelich, Germany
Erik	Lindahl	University of Stockholm
Hans-Joachim		Technical University of Munich
Olaf	Bungartz	
	Lenz	University of Stuttgart
Simon	Wong	Irish Centre for High-End Computing (ICHEC)
Lennart	Johnsson	University of Houston, Downtown
Pekka	Manninen	CSC - IT Center for Science Ltd., Finland

United States

First name	Last name	Institution
Elizabeth	Leake	University of Chicago
Jim	Ferguson	National Institute for Computational Sciences
		National Center for Supercomputing
Galen	Arnold	Applications
David	Keyes	Columbia University; KAUST
Britton	Smith	Michigan State University
Lonnie	Crosby	National Institute for Computational Sciences
Amy	Szczepanski	University of Tennessee / NICS
Scott	Callaghan	University of Southern California / SCEC
Thomas	Cheatham	University of Utah
Philip	Blood	Pittsburgh Supercomputing Center
Folker	meyer	University of Chicago
		National Center for Supercomputing
John	Towns	Applications
Tony	Drummond	Lawrence Berkeley National Laboratory
John	Johnson	Pacific Northwest Laboratory
Wen-Mei	Hwu	University of Illinois

Appendix C - Attendee Survey Summary

EU-US HPC Summer School 2011

South Lake Tahoe, Aug 7-12, 2011

Executive Summary

Of the 58 attendees that attended the summer school, 52 responded to the request to complete a survey of their experience after the summer school was completed, a 90% response rate. The respondents to the survey directly complemented the verbal comments provided during the summer school with an overwhelming positive response. More than 90% of the survey respondents rated the summer school as excellent or very good.

The survey questions were designed to provide feedback on the summer school to provide constructive feedback on how to further improve future summer schools. The responses provide very useful suggestions and recommendations that will aid planning for future events.

The primary recommendations:

- Continue to keep the group small enough that people have time to get to meet and talk with each other. Continue to recruit people from many countries (and expand beyond US and Europe) and from many disciplines.
- Continue to provide ample time for attendees and presenters to have time to talk informally, exchange ideas, and discuss opportunities throughout the week to develop friendships that have the potential to persist long after the summer school. Further, continue to “force” the attendees and presenters to “mix-it-up” so they meet as many people as possible during formal, informal, evening and extra-curricular activities.
- Continue to foster a friendly, supportive and fun environment that fosters community building, learning, and information sharing.
- Provide clarity to applicants and presenters as to the technological and scientific pre-requisites for participants to best benefit from the summer school, and tailor the sessions accordingly.
- Work with all presenters and support staff to ensure that they fully commit to mentoring the attendees all day throughout the full length of the summer school.
- Work with all presenters to ensure that the presentations and hands-on sessions are well structured and focused on meeting the goals of the summer school. Work with presenters to focus on tools, techniques and “words of wisdom”.
- Allow time to enjoy the local environment and attractions by adding evening working sessions. Plan for group outings to continue to foster community building.
- Continue to provide well structured hands-on sessions.

Quotes:

The following are highlights of the comments from the attendees, which help to capture the value and impact of the summer school on their education, their research, and their personal motivation for using HPC to advance their careers.

“I was able to meet other researchers from different fields and expertise sometimes complementary to mine. I was able to learn about new advances and challenges in the field of HPC and managed to get some really practical readily applicable knowledge from hands on tutorials.”

“Also, talking shop with speakers and fellow students about the unwritten lore in HPC gave me perspectives that will probably save me weeks or months in coding.”

“Not only did I realize that my research has an important implication (more than what I thought originally), I also met faculty working on similar problems and learned about the various aspects of the problem. It was also a great realization that someone else in some other corner of the world uses the same tools and similar ideas of a workflow.”

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“The hands-on sessions were a standout. It was great to get confidence with new tools, even with relatively simple applications. They greatly increased the probability that I will actually use the tools going forward.”

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"I hope to collaborate with at least one person who attended the course. I gained a lot of knowledge and got ideas which will shape the future direction of my research. Also, I feel inspired to continue my research with a little extra enthusiasm."

"Also, I was glad that everyone who attended was both very nice and professional in interactions. With such an interdisciplinary crowd, it was inevitable that there would be large gaps in knowledge between individuals. It was wonderful that the participants regarded these gaps as chances to explain their research or expand their knowledge, rather than an insurmountable obstacle to communication or a deficiency in another. It was a very friendly and helpful crowd."

"This is the best summer school I've attended so far. It was well organized and the most of the talks are very helpful. I look forward to attending more summer schools like this."

"The atmosphere was quite inspiring and stimulating. There were so many great ideas being thrown about, tailored, and fostered. It was great to see such enthusiastic people enjoying themselves while discussing and pursuing research ideas."

"I definitely found the atmosphere inspiring. It is great to meet so many enthusiastic students and see what research is being done around the world. This was a great way to meet people who due to geography, I may not have had the opportunity to meet otherwise."

Summary of Feedback to Survey Questions

1. Attendee Profile

	Percent	Count
Postdoc	21.2%	11
Graduate Student	76.9%	40
Faculty	1.9%	1
HPC Center Staff	0.0%	0

2. Attendee primary field of study

	Percent	Count
Astronomy	6.1%	3
Atmospheric Sciences	2.0%	1
Biology	12.2%	6
Chemistry	16.3%	8
Computer Science	8.2%	4
Engineering	28.6%	14
Mathematics	4.1%	2
Physics	22.4%	11

Other: Scientific Computing, Biophysics, Pharmaceutical, Astrophysics, Bioinformatics/Computational Sciences

3. Attendee's Institution Location

	Percent	Count
Europe	40.4%	21
United States	59.6%	31

4. Attendee goals for attending the Summer School

From among the responses, the two most common responses were:

- Meet colleagues, make connections with new people, and to have the opportunity to connect with international students and faculty
- Learn about tools and techniques for using HPC resources to conduct research

The next most common responses were:

- Learning how to apply what they learn to their own research
- Learning about the challenges and approaches in a wide range of scientific fields – not just their own field of research
- Learning how to improve their own codes

Other responses that were common included:

- Learning about the state-of-the-art and about trends in the HPC arena – technological and scientific
- Learning about the breadth of resources available
- Learning specifically about the use of GPUs to accomplish their research

5. To what extent the attendees felt the Summer School met their goals

	Percent	Count
Very Useful	46.2%	24
Useful	42.3%	22
Somewhat Useful	11.5%	6
Not Useful	0.0%	0

The predominant responses from the attendees included:

- Many good talks and presentations, and from the experts in their fields, with numerous positive comments on the value of meeting people from other countries

- Great interactions with student and faculty to learn and share strategies and techniques
- Learned things that will directly help me in my own research
- Learned about tools, methods, and techniques I was not previously aware of
- Multi-disciplinary nature of the talks and the attendees

The predominant negative aspects were:

- Some sessions were too short
- People would have liked more technical content and depth including HPC programming, debugging, code optimization, memory management, and time to work on their own research codes
- Some of the science talks were too detailed about the specifics of that field

Other comments included:

- The atmosphere was very conducive to the nature of the summer school
- There seemed to be more focus on computer science than inter-disciplinary science – though this seemed to be a minority opinion based on numerous other comments about the positive nature of multi-disciplinary nature of the meeting
- Good hands-on tutorials
- Some sessions were too advanced for the backgrounds of the attendees, while others felt the sessions provided a good overview and a good starting point for people getting started in HPC

6. How useful the attendees felt the sessions were to them

The first table below ranks the sessions based on “very useful” percentages in decreasing order.

The second table ranks the sessions based on combined percentages of “very useful” and “useful” in decreasing order.

Note that a number of the sessions were held in parallel, as reflected by the counts (in parentheses next to the %).

Table 1 – Rankings by “Very Useful” Percentages in Decreasing Order

	Very Useful	Useful	Somewhat Useful	Not Useful	N/A	Count
Performance Analysis & Profiling - PAPI, IPM, PerfSuite, TAU	57.7% (30)	26.9% (14)	9.6% (5)	0.0% (0)	5.8% (3)	52
Scientific Visualization	49.0% (25)	27.5% (14)	11.8% (6)	7.8% (4)	3.9% (2)	51

Electronic poster session	47.1% (24)	29.4% (15)	19.6% (10)	3.9% (2)	0.0% (0)	51
GPU/CUDA programming	44.0% (22)	24.0% (12)	18.0% (9)	4.0% (2)	10.0% (5)	50
Lunchtime BOFs	40.4% (21)	34.6% (18)	19.2% (10)	5.8% (3)	0.0% (0)	52
Overview on Mixed MPI/OpenMP Programming, UPC, CAF, StarSs Model	38.5% (20)	36.5% (19)	21.2% (11)	1.9% (1)	1.9% (1)	52
Introduction of Participants	35.3% (18)	47.1% (24)	9.8% (5)	5.9% (3)	2.0% (1)	51
Workflow Tool	28.0% (14)	18.0% (9)	14.0% (7)	4.0% (2)	36.0% (18)	50
Sunday Reception	26.9% (14)	48.1% (25)	15.4% (8)	1.9% (1)	7.7% (4)	52
Parallel I/O	23.1% (12)	32.7% (17)	13.5% (7)	0.0% (0)	30.8% (16)	52
Life Sciences - Amber	22.9% (11)	16.7% (8)	6.3% (3)	6.3% (3)	47.9% (23)	48
Exascale Software Project	21.2% (11)	46.2% (24)	28.8% (15)	3.8% (2)	0.0% (0)	52
Numerical Libraries	17.3% (9)	17.3% (9)	19.2% (10)	3.8% (2)	42.3% (22)	52
GROMACS	16.3% (8)	20.4% (10)	14.3% (7)	4.1% (2)	44.9% (22)	49
XSEDE Overview	15.4% (8)	50.0% (26)	23.1% (12)	9.6% (5)	1.9% (1)	52
Cosmology	15.4% (8)	25.0% (13)	21.2% (11)	5.8% (3)	32.7% (17)	52
Plasma Physics	14.0% (7)	34.0% (17)	12.0% (6)	4.0% (2)	36.0% (18)	50
Data Intensive Computing	13.7% (7)	23.5% (12)	27.5% (14)	29.4% (15)	5.9% (3)	51
Scalable fast algorithms for Coulomb interactions	12.5% (6)	16.7% (8)	12.5% (6)	8.3% (4)	50.0% (24)	48
CFD / Engineering	12.0% (6)	28.0% (14)	22.0% (11)	4.0% (2)	34.0% (17)	50
A Software Environment for Efficient Flow Simulation	11.5% (6)	25.0% (13)	21.2% (11)	3.8% (2)	38.5% (20)	52
PRACE Overview	7.7% (4)	44.2% (23)	34.6% (18)	11.5% (6)	1.9% (1)	52
Materials Science	5.9% (3)	27.5% (14)	9.8% (5)	5.9% (3)	51.0% (26)	51
Metagenomics - Earthmicrobiome Project	2.0% (1)	10.2% (5)	20.4% (10)	10.2% (5)	57.1% (28)	49

Table 2 – Rankings by combined “Very Useful” and “Useful” Percentages in Decreasing Order

Very Useful	Useful	Somewhat Useful	Not Useful	N/A	Count	
Performance Analysis & Profiling - PAPI, IPM, PerfSuite, TAU	57.7% (30)	26.9% (14)	9.6% (5)	0.0% (0)	5.8% (3)	52
Introduction of Participants	35.3% (18)	47.1% (24)	9.8% (5)	5.9% (3)	2.0% (1)	51
Scientific Visualization	49.0% (25)	27.5% (14)	11.8% (6)	7.8% (4)	3.9% (2)	51
Electronic poster session	47.1% (24)	29.4% (15)	19.6% (10)	3.9% (2)	0.0% (0)	51
Overview on Mixed MPI/OpenMP Programming, UPC, CAF, StarSs Model	38.5% (20)	36.5% (19)	21.2% (11)	1.9% (1)	1.9% (1)	52
Lunchtime BOFs	40.4% (21)	34.6% (18)	19.2% (10)	5.8% (3)	0.0% (0)	52
Sunday Reception	26.9% (14)	48.1% (25)	15.4% (8)	1.9% (1)	7.7% (4)	52
GPU/CUDA programming	44.0% (22)	24.0% (12)	18.0% (9)	4.0% (2)	10.0% (5)	50
Exascale Software Project	21.2% (11)	46.2% (24)	28.8% (15)	3.8% (2)	0.0% (0)	52
XSEDE Overview	15.4% (8)	50.0% (26)	23.1% (12)	9.6% (5)	1.9% (1)	52
Parallel I/O	23.1% (12)	32.7% (17)	13.5% (7)	0.0% (0)	30.8% (16)	52
PRACE Overview	7.7% (4)	44.2% (23)	34.6% (18)	11.5% (6)	1.9% (1)	52
Plasma Physics	14.0% (7)	34.0% (17)	12.0% (6)	4.0% (2)	36.0% (18)	50
Workflow Tool	28.0% (14)	18.0% (9)	14.0% (7)	4.0% (2)	36.0% (18)	50
CFD / Engineering	12.0% (6)	28.0% (14)	22.0% (11)	4.0% (2)	34.0% (17)	50
Cosmology	15.4% (8)	25.0% (13)	21.2% (11)	5.8% (3)	32.7% (17)	52
Life Sciences - Amber	22.9% (11)	16.7% (8)	6.3% (3)	6.3% (3)	47.9% (23)	48
GROMACS	16.3% (8)	20.4% (10)	14.3% (7)	4.1% (2)	44.9% (22)	49
A Software Environment for Efficient Flow Simulation	11.5% (6)	25.0% (13)	21.2% (11)	3.8% (2)	38.5% (20)	52
Data Intensive Computing	13.7% (7)	23.5% (12)	27.5% (14)	29.4% (15)	5.9% (3)	51

Numerical Libraries	17.3% (9)	17.3% (9)	19.2% (10)	3.8% (2)	42.3% (22)	52
Materials Science	5.9% (3)	27.5% (14)	9.8% (5)	5.9% (3)	51.0% (26)	51
Scalable fast algorithms for Coulomb interactions	12.5% (6)	16.7% (8)	12.5% (6)	8.3% (4)	50.0% (24)	48
Metagenomics - Earthmicrobiome Project	2.0% (1)	10.2% (5)	20.4% (10)	10.2% (5)	57.1% (28)	49

While not part of the formal program, the extra-curricular activities that occurred after hours were very popular with over 93% of the attendees.

Comments about the rankings from the attendees highlighted the following:

The most common comments were:

- If we are to be in such a beautiful location, allow us an afternoon off, and let us work in the evening to compensate
- Some sessions were too specific – would prefer a broader overview of capabilities
- Attendees thought a number of presentations were quite good and that they learned a lot from them
- There was not uniform quality in all the presentations – brief the presenters in advance to ensure more uniform quality
- Hands-on were good, but some presenters were better than others – work with presenters in advance for more uniform quality
- The summer school was well organized and very beneficial

Other comments that come from one or two people:

- Posters were a bit chaotic and there was too much at once – considering spreading the posters over multiple days with a few people presenting instead of everyone at once
- There were problems accessing Kraken
- Add a session on efficient programming, an overview of parallel programming, and overview of visualization
- Most fun ever at a summer school
- Mix of topics was good

7. What the attendees founds most useful about the Summer School

The most common comments included:

- Meeting other attendees and experts in the field, and having the time to talk with them informally and often
- The broad multi-disciplinary mix of the participants and the sessions

- The hands-on sessions were very valuable - chance to apply what was being described and ability to learn with some comfort with the tools
- The sessions mentioned most often as being valuable and well presented included GPU, Visualization, Performance Tools, and Workflows
- Other sessions mentioned included coding methods and data handling
- Overall the presentations and the availability of experts in the field was well received
- The methods and tools learned will benefit my own research

Other comments from one or two people included:

- The poster session was valuable
- The overall organization was excellent
- The CUDA session was too short
- Extra-curricular activities were great

8. What the attendees identified as least useful about the Summer School

In this case, there were a wide range of comments, and many of them were contrary to the very positive comments received in the previous question. The thread of comments included:

- Many of the science talks were too specific – we would have benefitted more from hearing about practical coding and performance tips and techniques they learned
- GPU session was too long and too difficult for a couple people
- There were a couple comments suggesting that the Internet and the remote resource access should have been checked out in advance, and everyone should have logged in the day before they needed to use a remote system
- People should not “sell” their organizations
- There were a couple people that did not benefit from talks from fields unrelated to their own
- A couple people said they were tired by the end, and one person suggested the summer school should have been longer
- One person said the hands-on sessions were generally not very useful (except GPU session)

The take away from this is that the presenters should be provided with more guidance on what should and should not be covered in their presentations, particularly as it relates to the science talks. Further, everyone should test their logins well in advance of a hands-on session to avoid delays. The summer school should be clear in its promotional efforts as to the level of prior experience that attendees should have to benefit from participation.

9. How well the attendees felt Facebook helped in sharing information and building community

There was an overwhelming positive response from over 30 people to the use of Facebook to share information and build community. Four people basically said they were surprised at how useful Facebook was for the summer school.

About five people said it was somewhat useful, and five people said it was not useful or they would not use it.

Among the comments were the following:

- It's more useful if everyone uses it
- A wiki would be just as useful, and less exclusive
- A couple people oppose the Facebook privacy policy
- One person said it's better than a mail list, but another person said the opposite
- Other suggestions – consider using Google+, and use picas or flickr for photos
- One person refuses to use Facebook for professional activities

10. The advice attendees have for PRACE and XSEDE organizers for planning for a Summer School next year

There were a few items that three or four people each suggested including:

- Make the summer school one day longer
- Provide an afternoon off for extra-curricular activities, and use the evening to make up the time
- Provide a parallel session to address the needs of two groups – beginners and more advanced users – or even create an introductory summer school and an advanced summer school
- Ask presenters to focus on tools, techniques and “words of wisdom”
- Provide sessions on more advanced use of tools
- Provide fewer talks and more hands-on sessions
- This was good – don't make major changes
- Continue to “force” people to mingle – it really did help people meet new people and make connections

There were a broad range of suggestions from one person including.:

- Avoid politics and selling any one organization (which occurred the first day)
- Improve quality of the talks
- Provide a machine for hands-on use that is easier to use (avoid crypto cards of Kraken)
- Locate near a major airport
- Provide a session for people to work on their own code and get assistance
- Include institutions on name badges

- Contrary to the above, two people said there should be fewer hands-on sessions but provide assignments people can pursue on their own time – and get assistance as needed
- Form small groups to work on an HPC problem together to learn as a group how to approach an HPC problem
- Engage students from other countries
- Better food options including more vegetarian options

11. How the attendees feel their participation in the Summer School will impact their own research.

The responses indicate that many of the attendees plan to incorporate and use the tools they learned about. In particular, nearly half of the respondents plan to use the code profiling and optimization tools. About 10 of the respondents plan to use the visualization capabilities they learned about, and an equal number plan to pursue use of GPUs to advance their research. Many attendees said they will apply what they have learned from the workflow and parallel I/O sessions.

More than half of the survey respondents indicated that they will explore the set of tools they learned about, and many of them indicated they will likely modify the methodologies they use in the computational work.

A number of people said they learned about resources that they will pursue in the US and/or Europe to support their research.

A few people mentioned that they plan to follow-up with others they met during the summer school.

Additionally, one or two people commented on the following:

- What they learned will cause them to use HPC sooner and will directly impact their thesis topic
- Plan to use Gromacs and/or Amber
- Gained insights into new concepts and directions that will assist over the long-term

12. Attendee comments on the summer school organization and logistics.

The most common comments included:

- Good location, good hotel, and good food, although a few people (including those with vegetarian needs) indicated the food could have been better.
- A few people said the hotel was expensive, and they would have rather had a smaller room and traded that for better food. What they don't know, is that

these were the least expensive rooms we could find after looking at multiple sites in multiple cities and states – the time of year made prices higher.

- Many people asked for an afternoon off to enjoy the surroundings and would be fine with an evening session to compensate
- Multiple people said the logistics were fantastic.
- A few people said the Internet could have been faster

Other comments from one or two people included:

- Make the summer school 5 days, so it's a little less intense and there is more time to talk with people and learn the tools
- People were tired by the end of each day
- The poster session felt confusing and could have been handled better, although it seemed to smooth out by the end
- Fewer parallel sessions and shorter talks
- Provide options for car pooling to and from the airport
- The support for European air travel was too low
- Cover airport shuttle costs
- Provide longer breaks to allow more interactions

13. Attendee perspectives on the networking opportunities.

This can best be summarized by a couple people who said that the time networking with other attendees and presenters was the best part of the summer school.

There was an overwhelming sense that people had lots of time to make connections. A number of people said they found the interactions to be excellent and well structured. About 10 people felt that collaborations would or had a good chance of resulting, while others felt they weren't together long enough to form collaborations at this time. A number of people plan to follow-up with other attendees and presenters on topics of common interest.

The attendees frequently mentioned that meeting people in other fields of study was valuable, and helped to provide a broader view.

A number of attendees remarked that the other attendees and presenters were very open to talking and exchanging ideas. A few people said that the presenters tended to disappear at the end of the day though, rather than joining in on evening activities for further discussions.

The extra-curricular activities were mentioned as beneficial to helping build community.

14. To what the attendee's goals were met.

The responses were fairly evenly divided among:

- Mostly met my goals with people saying 60-70%, 80%, 90%
- Met my goals
- Exceeded my expectations

In addition, a few comments included:

- I expect a collaboration to emerge
- I would have liked to receive more technical knowledge
- I would have liked to work on a real code
- I would have liked more hands-on sessions

15. The overall assessment of the Summer School by the attendees.

	Percent	Count
Excellent	44.2%	23
Very Good	46.2%	24
Good	5.8%	3
Fair	1.9%	1
Poor	1.9%	1

Just over 90% of the survey respondents (which represents 89% of the attendees) said the summer was excellent or very good. The following were the only 2 comments submitted, so we can only assess the good, fair and poor evaluations based on all of the other comments received.

- Thanks for organizing such a great summer school program! All of the organizers and speakers did an amazing job, and as an attendee, I really appreciate the effort they put in. Elizabeth did an excellent job organizing all of the diverse talks, lunches, and activities. Also, I really enjoyed talking to the presenters who joined the attendees for lunches, dinners, and activities (there were many).
- It was a really good summer school!

16. The attendee's general impressions of the Summer School.

The attendees were overall very positive in the remarks using words like "excellent", "fantastic", "friendly", "inspiring".

The responses said that the following were equally strong characteristics of the event:

- Well organized
- Learned a lot from good presenters
- Great opportunity to meet new people from numerous countries in a casual way

Throughout the survey responses, people have repeatedly said that they felt welcome by fellow attendees and presenters, that they felt they learned a lot from one another, and that new bonds have been formed that will be sustained. One person encapsulated this by saying “Like a family!” The other sense that emerges from all of the feedback is that the attendees had fun while learning and making new friendships.

One person said the summer school could have been more scientific and research oriented.

One person said “mainly a delusion” which probably is related to the one person that rated the overall experience as poor. No additional info was provided to explain this comment.

One person said they would strongly recommend this event to others.

17. The attendee’s overall impression of the atmosphere to learn and do interesting, new things together.

The attendees again used words like “relaxing”, “friendly”, “highly interactive among the people”, “nice, friendly, open people”, “collaborative”. The words “inspiring” and “stimulating” were used many times. The overwhelming response was extremely positive.

A few comments included:

- A few presentations fell short, but overall they were good
- Needed more time to reflect and practice
- Would have liked more hands-on sessions

18. Locations the attendees recommended for the next Summer Schools.

- General
 - Remote locations with airports
 - Big Cities
 - It doesn't matter as long as you expose us to new technologies and ideas.
 - Alternate between US and EU
 - Somewhere else that also has great weather and good scenery!
- US
 - Boston, MA
 - Boulder, CO
 - Burlington, VT
 - Cape Cod
 - Charleston, SC
 - Chicago, IL

- Flagstaff, AS
- Florida
- Hawaii
- Jackson Hole, Wyoming!
- Jamaica
- Knoxville/Oak Ridge seems like a reasonable choice for the U.S. since ORNL has several leadership class computers
- Madison, WI
- Myrtle Beach
- New York
- Portland, ME
- San Diego, CA
- San Francisco, California
- Seattle, WA
- St Louis, MO
- Smokey Mountains, TN
- Wilmington, SC
- Woods Hole Oceanographic Institution (MA)
- Europe
 - Aachen
 - Amsterdam
 - Annecy (France)
 - Berlin
 - Barcelona
 - Copenhagen
 - France
 - Geneva (Switzerland)
 - Germany
 - Helsinki (Finland)
 - Ireland - Dublin/Galway/Cork
 - Krakow (Poland)
 - Lisbon
 - London
 - Lugano (Switzerland)
 - Munich
 - Nice
 - Norway
 - Prague
 - Paris
 - Rome
 - Santander (Spain)
 - Sweden
 - Switzerland
 - Trieste, Italy
 - Vienna

- Some island in the Mediterranean, such as Corsica, Mallorca, Sardegna, etc.
 - What about Corfu? It has facilities, a nice climate and an EasyJet flight connection, allowing people to travel there at low costs (saving money which can then be spent on more nice/useful) things.
- Other
 - Iceland

Appendix D - Presenter and Support Staff Survey Summary

EU-US HPC Summer School 2011

South Lake Tahoe, Aug 7-12, 2011

Executive Summary

There were 18 surveys submitted from among the 26 presenters and support staff that attended the summer school, a 69% response rate.

Overall, the presenters and support staff had very positive comments about the summer school, and collectively rated the event as excellent or very good.

From all of the responses, the most prevalent recommendations and suggestions for future events include:

- Ensure that all presenters are well prepared well in advance for what they should address in their presentations.
- Ensure that all presenters and support staff commit to stay for the entire week, and commit to spending time talking with the attendees and presenters, and provide mentoring to the students.
- The agenda would benefit from some modifications to allow time for social events, and providing more breaks to make the sessions less intense.
- The respondents felt that future locations should be selected that are less apt to draw people out on their own, or arrange formal outings for the group as a whole. It was mentioned that last year in Catania the group spent more time together in the evenings because there weren't distractions as there were in Lake Tahoe. And yet, many people are recommending future sites in large cities, which will make the problem more challenging.
- Overall, the respondents felt the organization and planning were executed very well.

Summary of Survey Responses

1. What is your status?

	Percent	Count
Faculty	33.3%	5
Researcher	13.3%	2
HPC Center Staff	53.3%	8

Other positions included:

- Extracurricular activities coordination
- Service droid
- Software Developer
- Scientific Assistant

2. What is your primary field of study?

	Percent	Count
Astronomy	6.3%	1
Atmospheric Sciences	0.0%	0
Biology	6.3%	1
Chemistry	6.3%	1
Computer Science	25.0%	4
Engineering	6.3%	1
Mathematics	25.0%	4
Physics	25.0%	4

Other fields specified included: Biophysics, Molecular Dynamics, and Genomics.

3. Where is your primary institution?

	Percent	Count
Europe	35.3%	6
United States	64.7%	11

One presenter from the Middle East (originally from US).

4. Why the presenters decided to present/assist at the Summer School.

Among the respondents, the primary reasons were to share with the attendees what they know, with a focus on mentoring new people to pursue the field of HPC. There was also an interest in meeting with students and other presenters, especially with people from across the Atlantic. The presenters also wanted to learn to expand their own knowledge and skills. A number of the presenters and staff had attended the first summer school, and found the experience rewarding.

5. The presenters and support staff ranked the usefulness of the sessions.

The following is a ranking of the sessions by the presenters and support staff, based on those that were identified as very useful. Note that a number of sessions were conducted in parallel.

The presenters and support staff have a different perspective on which sessions are useful. In general the presenters and the attendees felt that the hands-on sessions were of high value, and higher than the scientific talks.

People generally felt that the speakers were very knowledgeable and that the sessions were generally well done.

Table 1 – Rankings by “Very Useful” Percentages in Decreasing Order

	Very Useful	Useful	Somewhat Useful	Not Useful	N/A	Count
Introduction of Participants	35.3% (6)	35.3% (6)	5.9% (1)	0.0% (0)	23.5% (4)	17
Overview on Mixed MPI/OpenMP Programming, UPC, CAF, StarSs Model	29.4% (5)	23.5% (4)	5.9% (1)	0.0% (0)	41.2% (7)	17
Scientific Visualization	25.0% (4)	25.0% (4)	12.5% (2)	0.0% (0)	37.5% (6)	16
Workflow Tools	23.5% (4)	11.8% (2)	5.9% (1)	0.0% (0)	58.8% (10)	17
Exascale Software Project	18.8% (3)	31.3% (5)	25.0% (4)	0.0% (0)	25.0% (4)	16
Performance Analysis & Profiling - PAPI, IPM, PerfSuite, TAU	17.6% (3)	35.3% (6)	5.9% (1)	0.0% (0)	41.2% (7)	17
GPU/CUDA programming	17.6% (3)	23.5% (4)	11.8% (2)	5.9% (1)	41.2% (7)	17
Life Sciences - Amber	17.6% (3)	23.5% (4)	5.9% (1)	0.0% (0)	52.9% (9)	17
XSEDE Overview	11.8% (2)	23.5% (4)	29.4% (5)	11.8% (2)	23.5% (4)	17
Metagenomics - Earthmicrobiome Project	11.8% (2)	11.8% (2)	5.9% (1)	0.0% (0)	70.6% (12)	17
Parallel I/O	11.8% (2)	29.4% (5)	5.9% (1)	0.0% (0)	52.9% (9)	17
GROMACS	11.8% (2)	17.6% (3)	0.0% (0)	0.0% (0)	70.6% (12)	17
Data Intensive Computing	11.8% (2)	5.9% (1)	23.5% (4)	17.6% (3)	41.2% (7)	17
Materials Science	11.8% (2)	0.0% (0)	5.9% (1)	0.0% (0)	82.4% (14)	17
A Software Environment for Efficient Flow Simulations	6.3% (1)	12.5% (2)	18.8% (3)	0.0% (0)	62.5% (10)	16
CFD / Engineering	6.3% (1)	6.3% (1)	0.0% (0)	0.0% (0)	87.5% (14)	16
Numerical Libraries	6.3% (1)	0.0% (0)	6.3% (1)	6.3% (1)	81.3% (13)	16
PRACE Overview	5.9% (1)	35.3% (6)	29.4% (5)	5.9% (1)	23.5% (4)	17
Cosmology	5.9% (1)	29.4% (5)	0.0% (0)	0.0% (0)	64.7% (11)	17
Scalable fast algorithms for Coulomb interactions	0.0% (0)	23.5% (4)	5.9% (1)	0.0% (0)	70.6% (12)	17
Plasma Physics	0.0% (0)	17.6% (3)	5.9% (1)	0.0% (0)	76.5% (13)	17

Other comments provided included:

- One student told me that he never had the time to learn this information on his own, and found the summer school to be useful.
- Extremely high quality speakers overall, who had done a tremendous job in disseminating a wide range of domain-specific information to a general audience.
- There was a good balance between science & HPC.
- The hands-on sessions were aimed at the right level, accompanied by clear explanations, although time was somewhat limited.

6. Presenters and staff identified what they found most useful about the Summer School.

A number of people referenced the value of meeting the students and faculty, being able to talk about problems across domains, people coming together to leverage each other's work, and everyone having a chance to learn new things.

Other comments included:

- Smooth operations
- Quality of presenters and their presentations
- Posters were a great way to learn what the students are doing – just not enough time to see them all
- Forced social mixing to get everyone to meet as many people as possible
- Value of multi-disciplinary interactions
- The hands-on sessions provided more of a broad introduction to HPC

7. What the presenters and staff found to be least useful about the Summer School.

The respondents provided a broad range of comments. The most common aspect was that the schedule was very full and intense. The program should probably be 5 days in length, and the planners should break up the schedule mixing afternoon and evening sessions, and have more breaks.

Other comments included:

- The extra-curricular activities should have been organized more formally to engage everyone.
- Not all the science talks were well focused on the needs of the diverse audience.
- I would prefer a "remote" location (outside town) where you do not have to share the place with other people and you can focus on the summer school group.
- The local organizers did a great job and in the end it was not so bad as I thought it would be.

- I think we should a full day on Monday, and break at noon on Tuesday for extra-curricular fun. Hands-on Tuesday night, and Weds. full day. Formal dinner Weds. night. Thursday, half day, and hands-on at night. Friday, half day, and activities in the afternoon/evening. Leave on Saturday.
- Allow any students who travel abroad (EU/US) to spend an extra two days up front to decompress and acclimate. Several got sick and it was difficult for them to participate.

8. The advice they have for PRACE and XSEDE organizers next year.

A common message is that the presenters would benefit from more guidance on their presentations and the expectations of the summer school and the attendees.

Another common message is that the attendees tended to go off in small groups after dinner. Hosting the summer schools at a more intimate site with fewer distractions may foster more group interactions and community building. The more intimate the place is the more successful the collaborations, networking and technical conversations are.

It was felt that many of the attendees were fairly advanced and that the organizers may want to consider how to serve younger students who are less experienced with HPC, and perhaps not include postdocs. The attendees also commented that the summer school should consider either separate sessions for beginners and more experienced attendees, or having separate summer schools for beginners and more experienced attendees.

The group felt that the summer school was well organized.

Other comments provided included:

- The organizers might also want to consider having a larger number of parallel sessions at one time with smaller numbers in each session. This might encourage the students to participate more in the lectures and would motivate the presenters to provide more interactivity.
- Advertise that participants can come early/stay late on their own before plane tickets are organized. This would allow for activities before/after the conference schedule.
- I only saw pictures of people having fun posted to the FB group and wiki. From someone not there, it looks like a group vacation.
- I think more mentor/mentee relationships might form if the attendees were a little earlier in their careers -- perhaps limit it to only graduate students, no post-docs?
- I think a time slot where small groups (5-10) could gather by discipline and talk about some of the HPC challenges unique to their field in a discussion setting could be useful.

- I liked the e-poster session. It was a good way for the students to present their work without requiring them to make an actual poster.
- Instead of having a 3-hour block all in one afternoon, I'd be more successful teaching three one-hour sessions. Maybe split up lecture from lab? Maybe switch things up so that on one day the lab is in the evening so the afternoon is free?

One respondent provided a more in-depth set of suggested changes:

- Perhaps think about how to further create a "retreat" atmosphere where everyone is doing almost everything together during and after the formal program. Plan some time for a formal group recreation event on an afternoon that is "part of the program". It is a bit of a shame to go to these amazing places, but then have little time to experience anything outside of the hotel. On the other hand, since there were easy options to go places after dinner this year, it resulting in everyone going their separate ways, which cut down on the feeling of "togetherness" that I experienced last year in Catania. There is nothing like stranding a bunch of people on an island together to build "togetherness". :) Let people who apply know in advance that they will be expected to stick with the group. Of course, there could be some time built in for people to get away and be by themselves, but that would be the exception. It is tough to cut anything out of the schedule, but I think a formal event in the middle of the week that is part of the program could do a lot to build relationships/collaborations. Perhaps this could be coupled with a dinner off site, sort of like SC. I know this can also get expensive, but perhaps attendees could pitch in somehow (maybe voluntarily, through a raffle or something?) Maybe there could be some after dinner talks during the week to keep the schedule manageable and to keep everyone together.

9. How participation in the Summer School will impact their research or outreach efforts.

The presenters and support staff felt that they learned from the sessions and were exposed to useful talks and sessions. The sessions helped identify tools they can use – workflow, libraries, visualization, CUDA, Visit, GROMACS, parallel I/O, and code profiling and optimization.

Comments included:

- I learned how computation-based classes should be taught.
- I gained a greater understanding for the computation skills in other disciplines that will help me as I prepare similar classes in the future.
- I was able to network with some EU colleagues and find some job leads. It was very beneficial. Thanks for allowing me to participate.
- I got some interesting feedback and comments on my tools which we will try to incorporate into our tool in the future.

- I will probably apply Facebook community for our summer school

10. Comments on the logistics.

The consensus was that the summer school was great, the location was great, food was good, and the logistics were well organized.

The aspect of the intensity of the week was raised by a few people. A number of suggestions were made to break up the days and the week to still provide content in a more balanced and relaxed manner. And yet, others said the schedule was good and well balanced, but they tended to be in the minority.

A number of people who attended the 1st summer school in Catania, said the food was OK in Lake Tahoe, but was better in Italy, including providing wine. More healthy food would have improved things.

Other comments included:

- The wiki was challenging to get started
- The presentation schedule was very intense. By dividing the longer (> 1 hour) presentations into more manageable chunks, fatigue may be lessened.
- The internet connection of the hotel was not nearly fast enough to support the in-class activities which required all of the students to be connected remotely to supercomputers.
- Daily schedule is neither too relaxed nor too intense.
- Free wireless was useful, albeit a little slow compared to what I'm used to.
- Schedule was appropriate and extracurricular activities had enough time.
- I think the schedule was reasonable; 8:30 is not too early to start, and I appreciated the hour between the end of sessions and dinner.
- Location should be easier to reach from the airport; transportation was challenging.

11. How they found the networking opportunities.

Overall, the respondents felt that the summer school afforded many, good and sufficient opportunities for people to meet, talk, and share ideas. Many ranked them as excellent and the core value of the summer school.

- I did establish some new contacts/collaborations, and overall the networking opportunities were good. However, somehow it seemed that there were fewer opportunities than the previous summer school in Italy. I can identify a couple of factors that may have contributed: 1. After dinner activities: most people did not stay at dinner for very long to talk. This may have been because smaller groups made plans to go places after dinner. In Catania, everyone sat and talked at dinner for a long time because there was no where

else to go. Perhaps this was beneficial to the smaller groups, but it may have been less beneficial to the group as a whole. 2. Internet in the rooms: in Catania, we had the mixed blessing and curse that most people did not have internet in their rooms. This caused everyone to congregate in the lobbies after dinner and provided additional opportunities for people to connect. It may have been less convenient for people who needed/wanted to work, but it helped people connect.

- On a social level, there wasn't a big distinction between the students and the speakers, which I appreciated.
- On a professional level, I did not form any new collaborations. I did not find there to be sufficient overlap of scientific interest required for collaboration.
- The electronic poster session was an inspired idea and turned out to be really successful.
- Have personally made several connections that are useful for my center and may lead to collaborations in future.
- I also used the opportunity to learn the one or other thing I did not had time yet to look into it (GPU programming, Visualization)

12. The extent to which their goals were met.

The respondents all said that their goals were met, and that they were satisfied, and a few said they were more than met. It was mentioned that the repetition of speakers from last year demonstrated how small the expert community is.

13. Their overall assessment of the Summer School.

	Percent	Count
Excellent	44.4%	8
Very Good	55.6%	10
Good	0.0%	0
Fair	0.0%	0
Poor	0.0%	0

- The quality of the speakers and the location were great!
- Maybe one could tweak the choice of the topics a bit.
- It was a fantastic event with something for everyone involved.
- The schedule should probably shift from day to day: day 0 : 8:30 - 5:00 day 1: 13:00 - 20:00 day 2: 7:00 - 3:00 ... This would allow for more (and varied) activity outside of the sessions. There's a tendency to do pretty much the same thing if the free time is only in the evenings.

14. The overall impression of the atmosphere to learn and do interesting, new things together.

Overall the respondents all said that the summer school was good, very good, or excellent. Multiple people said the summer school was inspiring and motivating.

It was suggested that the days should be structured to keep people together throughout the day as much as possible.

Comments included:

- Inspiring and a great fringe benefit of building scientific networks is the people and the chances to experience the best of other colleagues environments.
- Very stimulating and lots of interaction. Everyone was interacting during all the times I saw people (not many people sitting by themselves).
- I think it was an excellent atmosphere. I think we all felt comfortable talking about science and non-science and a lot of participants, myself included, got ideas that could help improve our work.

15. For those that attended last year, how they compared this year's summer school to last year's summer school.

The respondents felt that both locations were equally good, but that the food in Italy was better.

There was a sense that the technical content and activities were better in 2011 due in part to the hands-on sessions and extra-curricular activities.

Comments included:

- Last year, I like the town-hall meeting at the end which allowed for students to interact with presenters and their feedback was greatly appreciated.
- The facilities were better this year and there were more opportunities for activities outside the hotel (hiking, boat dinner, Shakespeare...).
- The location was much better, the students seemed to be more engaged.
- I think the activities were better, and the academic program similar.
- Excellent location and good availability of extracurricular activities again.
- Very smooth logistics and organizers were accommodating.
- The technical content was better mainly because of the addition of the hands-on parts!!

16. Their general impressions of the Summer School.

The respondents felt that it was a great opportunity for bringing people together to learn more about HPC. It was felt to be useful for the attendees and the presenters. A number of them asked to be invited again next year.

Comments included:

- I believe this is a wonderful and important program and should be grown in the coming years.
- It helps build the international HPC community, and provides an intense forum for advanced education.
- The specific goals of the summer school still seem to be a bit vague, but I think they will come into better focus as more are done.
- I heard no negative comments from anyone.
- I think the US/EU relationship could be played up a bit more, even; the two groups don't always have a lot of opportunities to interact, especially for young scientists.

17. Sites recommended for the next Summer Schools.

There are opposing views about where to hold the summer schools. Some people prefer a remote location to keep the attendees focused on working together, while others prefer locations with a variety of local activities.

- I recommend staying out of big cities, which can provide too much of a distraction to the participants. Medium-sized towns with a decent number of outdoor activities as well as a non-zero number of restaurants/bars give participants enough not to be bored, but not too much that they are drawn away from the summer school.
- Dublin.
- I still like the thought of Bozeman, MT. Cowboy theme.
- St Louis, MO
- Madison, WI [US]
- London
- any big city
- St. Louis
- Madison, WI
- Monterey, CA
- Boulder, CO
- Asheville, NC
- Barcelona (but it is too hot there in Summer)
- US: definitely in the West (Boulder, Snowbird, Jackson Hole, Some lodge in Oregon's cascades,)
- Boston, MA